How LBNL & UCB Innovations Get Commercialized... Locally



Mike Cohen
Director, Innovation Ecosystem Development
UC Berkeley Office of Technology Licensing
mike.c@berkeley.edu
510-643-7201

Agenda: 15 Minutes

- 1. How UCB/LBNL Innovations Get Commercialized
- 2. How Can the Commercialization Occur Locally
- 3. Case Study: Berkeley CA
- 4. Q&A

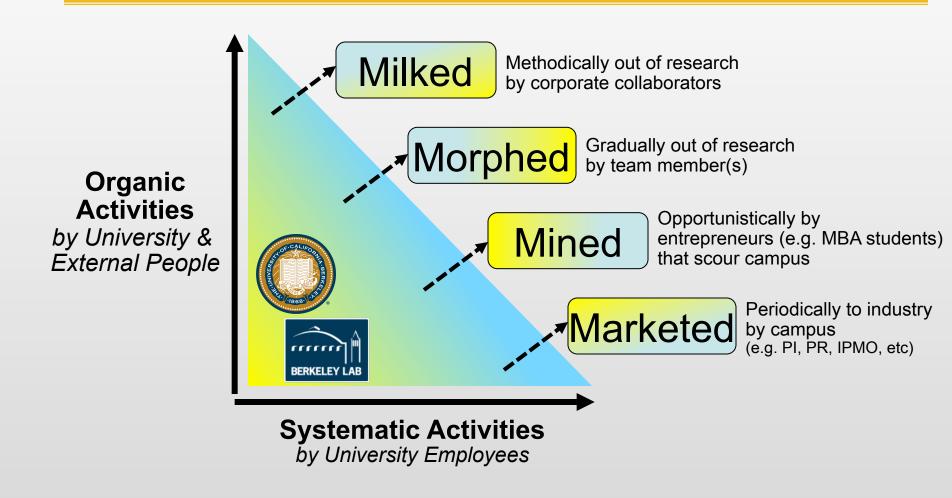
Research: How Univ Innovations Get Commercialized?

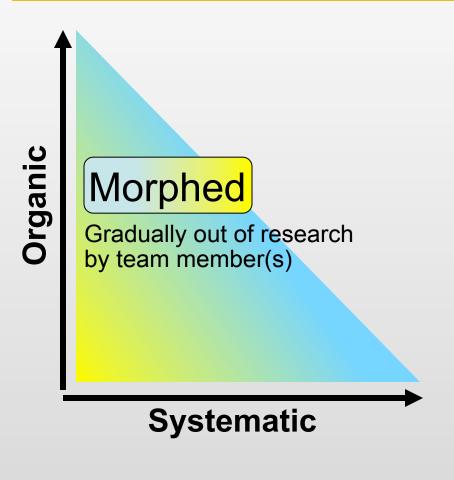
- ☐ **Questions**: How do university innovations get commercialized?
 - Conventional answer is linear (research=>invention=>license =>commercialize)
 - What and/or who catalyzed the commercialization?
 - How are universities involved in the process?
 - How can universities increase innovation commercialization?

☐ Answers:

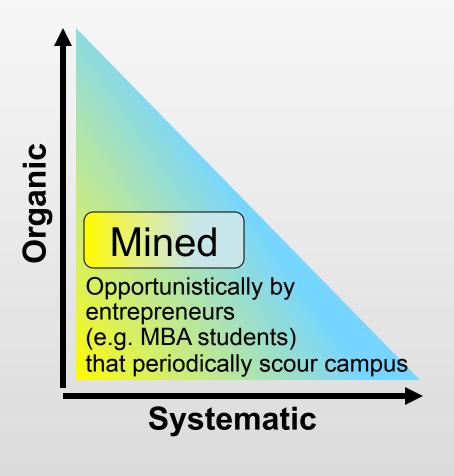
- Researched commercialization of >50 UCB & LBNL innovations
- Research revealed 4 common patterns/pathways
- Developed a useful framework based on 4 patterns
- Developed strategies for optimizing the 4 pathways

4Ms Framework: 4 Pathways for Commercialization

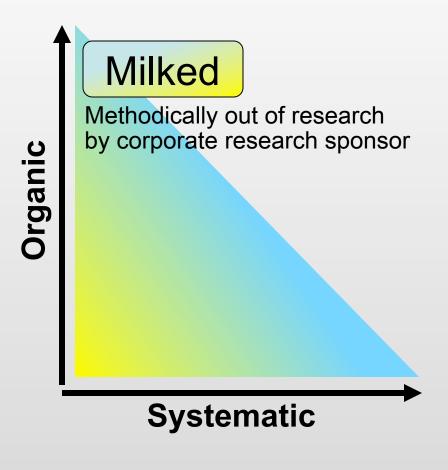




- Examples: Amyris, Calimetrics, CaliSolar, CellASIC, Chiron, Ensighta Security, Excellin, Fluxion Biosystems, GoodGuide, Harmonic Devices, Hybrid Wisdom Labs, Inktomi, Integrated Diag, IntelliOne, Kalinex, Lumiphore, Mercator Med, MicroClimates, MicroFluiDX, OnWafer, ON Diagnostics, PhotoSwitch Bioscience, Redwood Bioscience, Safely, SiClocks, TheraFuse, Urban Scan, Verimetra Med, Wireless Industrial Tech, Dust Networks, Iris AO, SiTime, NanoGripTech*
- ☐ Drivers:
 - > Quantity & Quality of Research
 - > Ecosystem: Spin-out vs Blast-out
- ☐ IP:
 - Some obtain exclusive license to improve biz plan & attract investors
 - > Some ignore or abscond with IP



- Examples: Adura Tech, Aurora Biofuels, CommandCAD, Euclid Media, MediFuel, NanoRay, nanoPrint
- Drivers:
 - ➤ Quantity & Quality of Research
 - ➤ MBAs, Biz plan comp, OTL mrktg
- ☐ IP:
 - ➤ Many obtain exclusive license to improve biz plan & attract investors
 - > Some ignore or abscond with IP
- Comments:
 - ➤ Pathway with highest growth rate
 - ➤ MBAs are the campus's EIRs



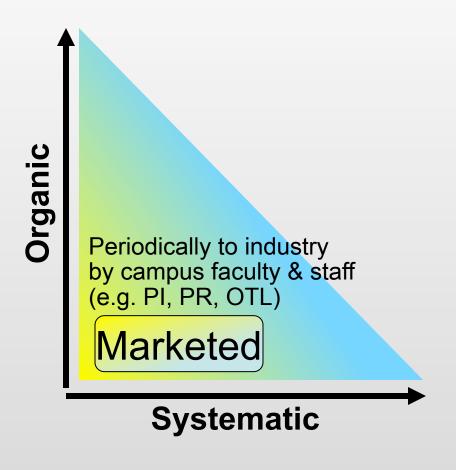
Examples (that licensed IP):
 Analog Devices, Nueprene (XL
 Tech), Google, Honeywell, Intel,
 Berkeley Bionics (first morphed then milked)

Drivers:

- ➤ Great sponsored research with optimized terms (i.e. 1st access, NERF, open source, etc)
- ➤ Off-campus corporate labs (i.e. BWRC, Intel, Cadence, Yahoo, Starkey, etc)

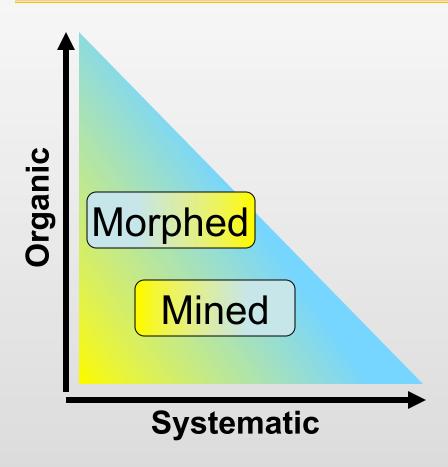
☐ <u>IP</u>:

- Some jointly own IP
- ➤ Some obtain a license to legally use IP or thwart competitors
- Some ignore or abscond with IP (why license when get know-how)

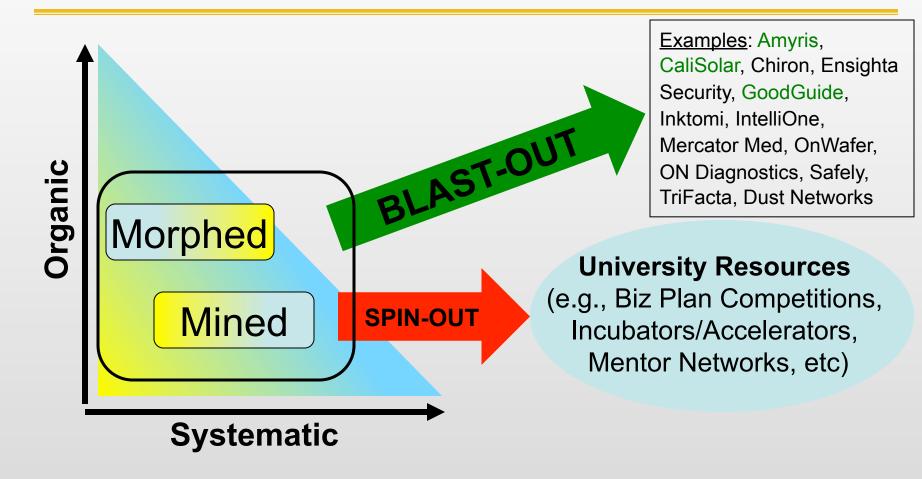


- <u>Examples</u>: Arkal Medical, Cisco,
 ClimateCooler, FuelFX, Luminus
 Devices, Honeywell, Microchip
 Biotech, Renovis, Sand9, Silicon Basis,
 Solexel, Vitesse, 3M
- Drivers:
 - ➤ Quantity & Quality of Research
 - Marketing (i.e. IP Licensing offices, University PR programs, Faculty pubs & ppts, Patent pubs, etc)
- <u>IP:</u>
 - Most obtain exclusive license to stay legal, improve BP, attract investment, or thwart competitors
 - ➤ Some ignore IP or abscond with IP
- Comments: Didn't get morphed, milked or mined because tech or market too nascent when invented

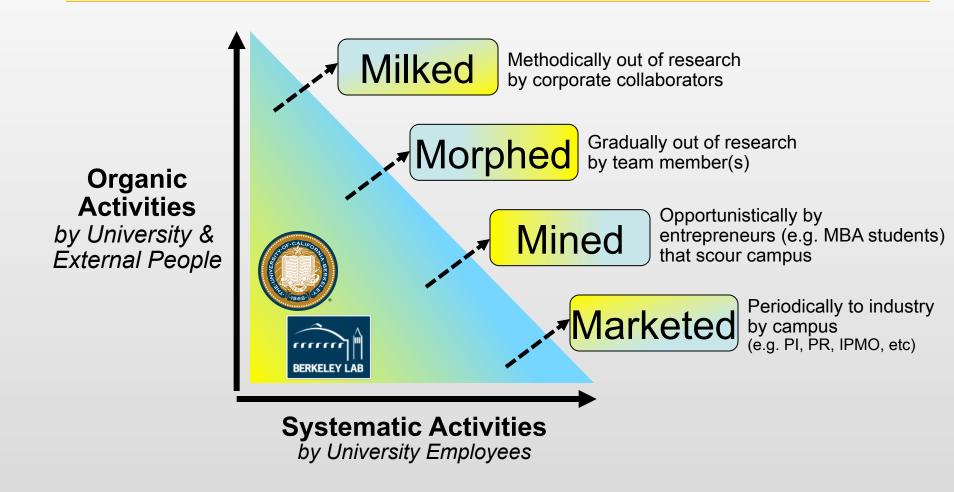
4Ms Framework: University Startups



University Startups: Spin-outs vs Blast-outs



4Ms Framework: 4 Pathways for Commercialization



Innovation Ecosystem: Definition

Cluster of R&D-oriented entities readily accessible – including small & large corps, tech vets, entrepreneurs & early stage investors as well as related supply chains & service providers

Innovation Ecosystem: Continuum

Cluster of R&D-oriented entities readily accessible – including small & large corps, tech vets, entrepreneurs & early stage investors as well as related supply chains & service providers

Hyper Local:

Local:

Metro:

Regional National

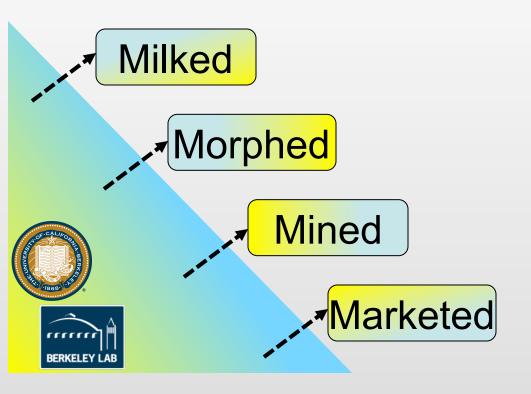
Global

Convenient:
walk, bike, shuttle
or short drive
(with easy parking)

Less than 30 minutes drive + easy parking

About 30-60 minutes + - commuter traffic

Innovation Ecosystem: 4M Pathways



Hyper Local: Convenient:

walk, bike, shuttle or short drive

(with easy parking)

Local:

Less than 30 minutes drive + easy parking

Metro: About 30-60 minutes

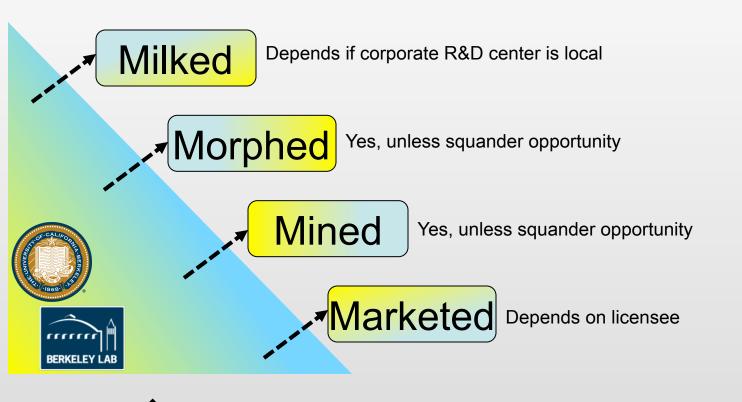
+ - commuter traffic

Regional

National

Global

Innovation Ecosystem: 4M Pathways Locations



Hyper Local:

Convenient: walk, bike, shuttle or short drive

(with easy parking)

Local:

Less than 30 minutes drive + easy parking

Metro:

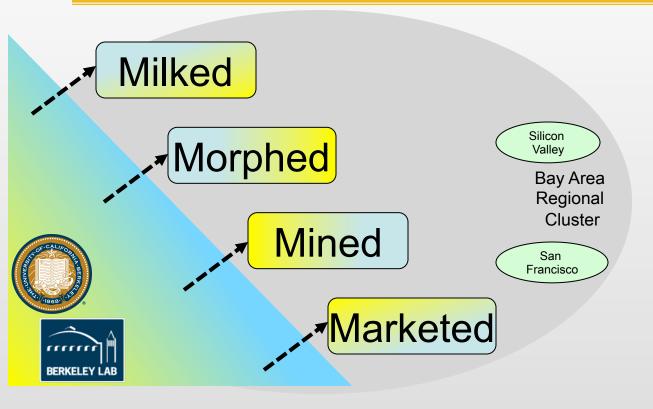
About 30-60 minutes

Regional National

Global

+ - commuter traffic

Innovation Ecosystem: Low Barriers to EB Exit



Hyper Local: Convenient:

(with easy parking)

Convenient: walk, bike, shuttle or short drive

Less than 30 minutes drive + easy parking

Local:

Metro:
About 30-60 minutes

+ - commuter traffic

Regional National

itional Global

Innovation Ecosystem: Bay Area



Hyper Local:

Convenient: walk, bike, shuttle or short drive (with easy parking) Local:

Less than 30 minutes drive + easy parking

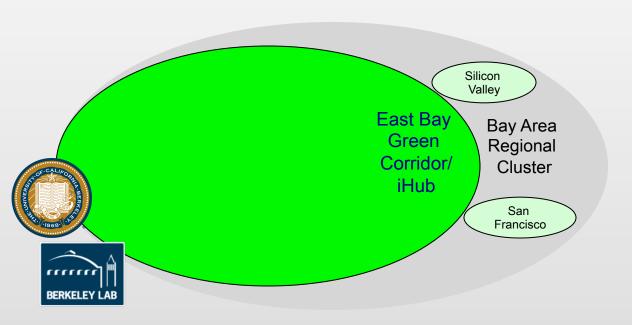
Metro:

About 30-60 minutes + - commuter traffic

Accessibility to Campus

Regional National Global

Innovation Ecosystem: Initiative for East Bay



Hyper Local:

Convenient: walk, bike, shuttle or short drive (with easy parking) Local:

Less than 30 minutes drive + easy parking

Metro:

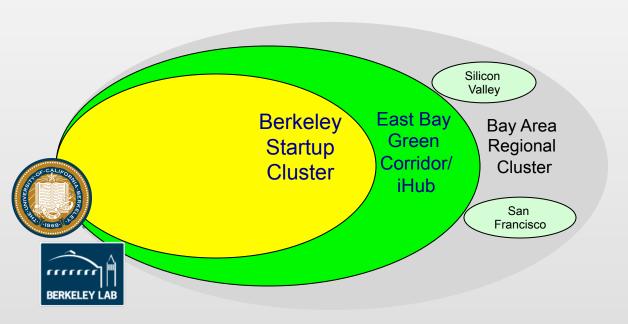
About 30-60 minutes + - commuter traffic Regional

National

Global

Accessibility to Campus

Innovation Ecosystem: Initiative for City of Berkeley



Hyper Local:

Convenient: walk, bike, shuttle or short drive (with easy parking) Local:

Less than 30 minutes drive + easy parking

Metro:

Regional

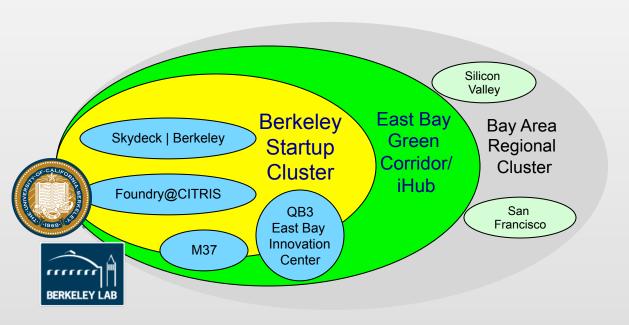
National

Global

About 30-60 minutes + - commuter traffic

Accessibility to Campus

Innovation Ecosystem: Incubators & Accelerators



Hyper Local:

Convenient: walk, bike, shuttle or short drive (with easy parking) Local:

Less than 30 minutes drive + easy parking

Metro:

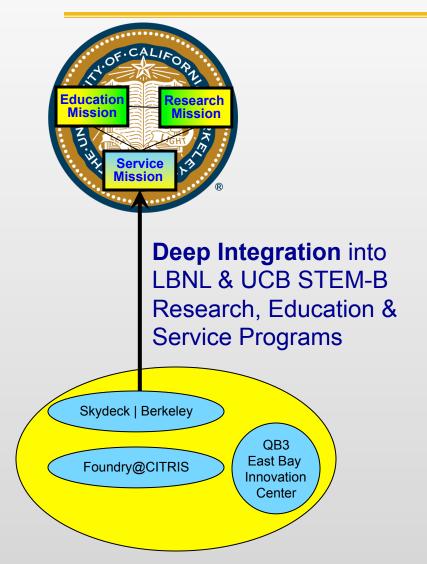
About 30-60 minutes + - commuter traffic

Accessibility to Campus

Regional **National**

Global

Localization: Deep Integration into Univ STEM-B*

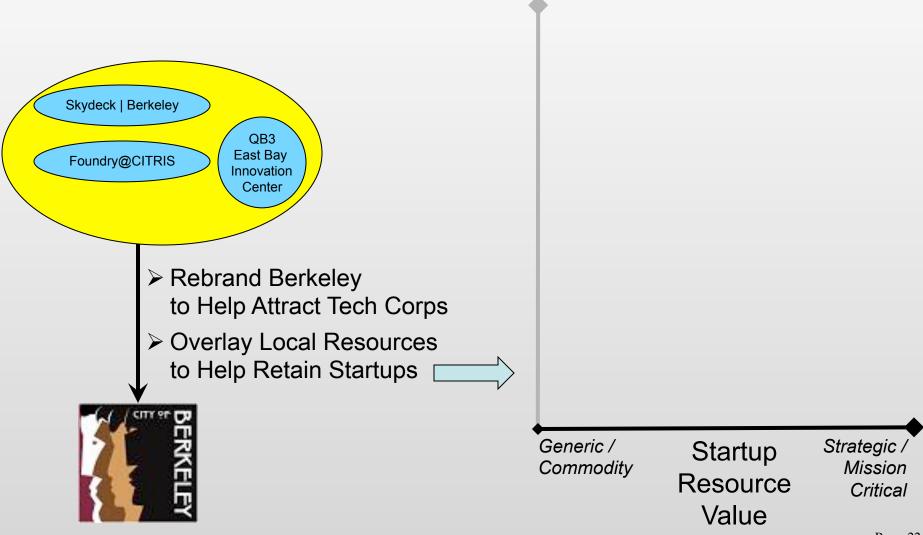


*STEM-B: Science, Technology, Engineering, Math & Business

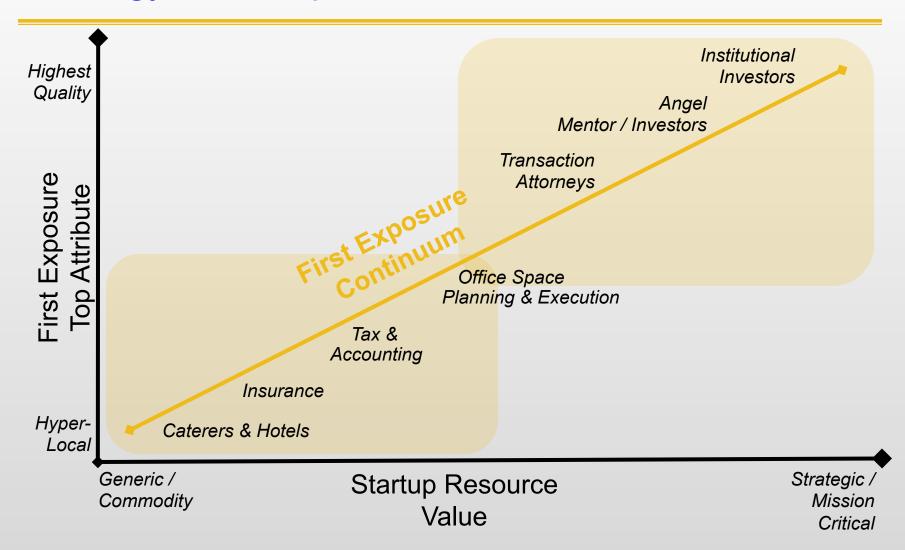
BENEFITS:

- ➤ Commercialization of campus innovations (& licensing of Intellectual Property)
- ➤ Experiential learning & internships for students
- ➤ Entrepreneurship opportunities for graduates
- ➤ Collaborations with university faculty
- ➤ Mentorship from alumni & UC Berkeley network
- >Exchanges with partner university incubators
- ➤ Advantages to attract top faculty & students
- ➤ Serendipitous discussions that create corps (researchers, entrepreneurs & investors)

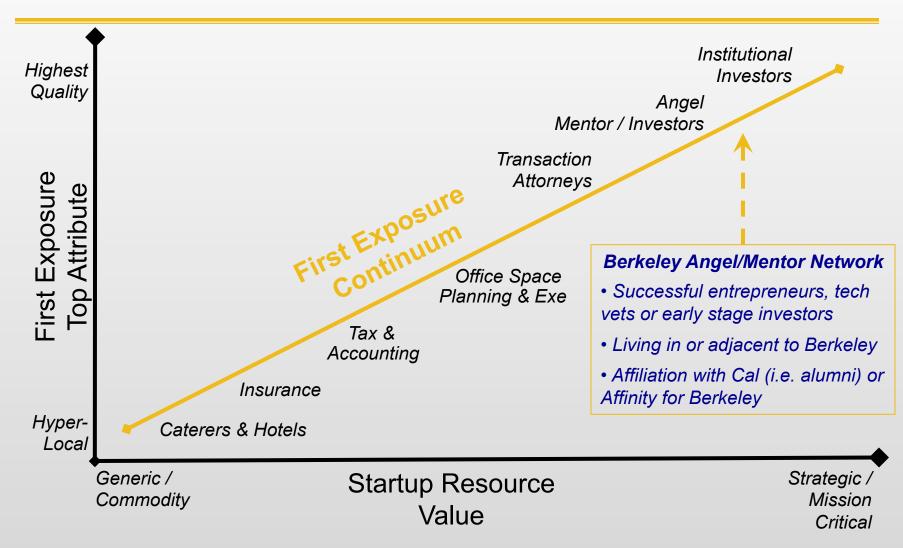
Strategy: Segmenting Local Resources



Strategy: First Exposure (not required or pushed)



Strategy: Build Berkeley Angel/Mentor Network



Localization: Role of University Startup Accelerators

Over 300
Startup Incubators-Accelerators

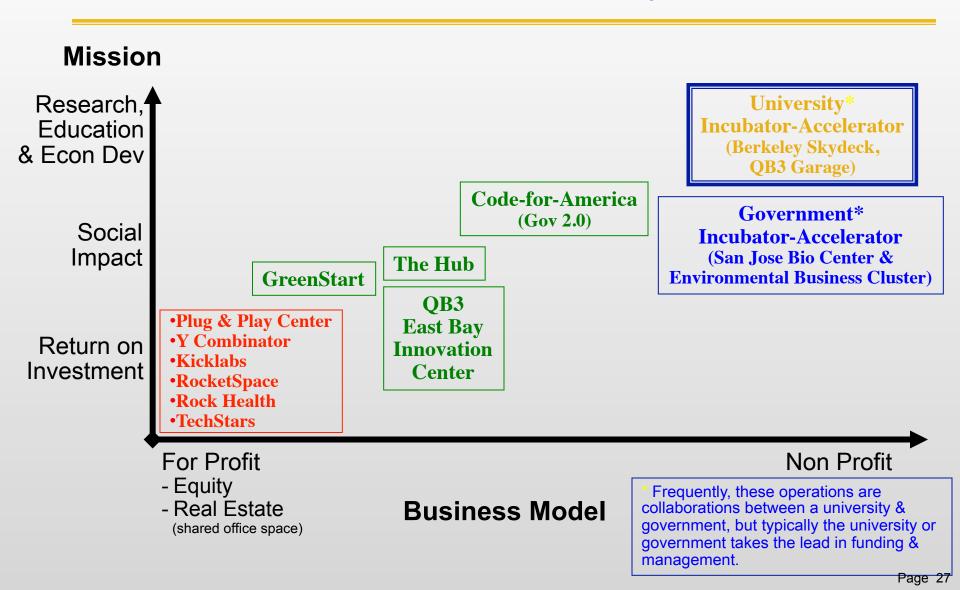
Why Do We Need Yet Another?

What Makes the Berkeley's Different & How Can We Leverage It?

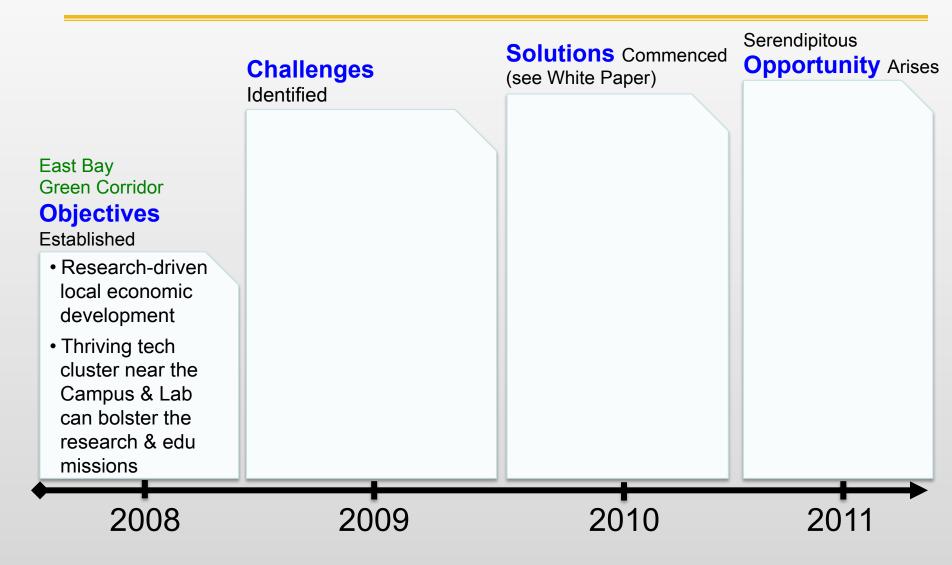
Localization: Accelerator Segmentation



Localization: Accelerator Landscape



Case Study: Berkeley Hy-LIE - Inspiration



Case Study: Berkeley Hy-LIE - Challenges

Serendipitous **Solutions** Commenced **Challenges** (see White Paper) Identified

East Bay Green Corridor

Objectives

Established

- Research-driven local economic development
- Thriving tech cluster near the Campus & Lab can bolster the research & edu missions

 History of innovation drain & squandered opportunities

- Dearth of office space conducive to startups & emerging growth corps
- Underdeveloped network of tech vets, early stage investors, & serial entrepreneurs
- Low exit barrier to leading SV & SF require local competitive advantages

Opportunity Arises

2010

2011

Case Study: Berkeley Hy-LIE - Solutions

Challenges

Identified

- History of innovation drain & squandered opportunities
- Dearth of office space conducive to startups & emerging growth corps
- Underdeveloped network of tech vets, early stage investors, & serial entrepreneurs
- Low exit barrier to leading SV & SF require local competitive advantages

Solutions Commenced (see White Paper)

- Edu campaign to building ownerdevelopers: "if you build it, they will stay"
- Feedback: Change zoning laws in West Berkeley for R&D use
- Biotech Incubator (wet labs): QB3 East Bay Innovation Center (the Bakery)
- IT cluster: Berkeley Startup Cluster.NET

Serendipitous

Opportunity Arises

2008

East Bay

Green Corridor

Objectives

Research-driven

local economic

cluster near the

Campus & Lab

can bolster the

research & edu

missions

development

Thriving tech

Established

2009

2010

2011

Case Study: Berkeley Hy-LIE - Opportunities

East Bay Green Corridor

Objectives

Established

- Research-driven local economic development
- Thriving tech cluster near the Campus & Lab can bolster the research & edu missions

Challenges

Identified

- History of innovation drain & squandered opportunities
- Dearth of office space conducive to startups & emerging growth corps
- Underdeveloped network of tech vets, early stage investors, & serial entrepreneurs
- Low exit barrier to leading SV & SF require local competitive advantages

Solutions Commenced (see White Paper)

- Edu campaign to building ownerdevelopers: "if you build it, they will stay"
- Feedback: Change zoning laws in West Berkeley for R&D use
- Biotech Incubator
 (wet labs): QB3 East
 Bay Innovation Center
 (the Bakery)
- IT cluster: Berkeley Startup Cluster.com

Serendipitous Opportunity Arises

- Intel Research
 Berkeley "lablet"
 closing
- Berkeley
 "Skydeck"
 accelerator
 conceived
- Thinking Big: transform area near campus into world-class IT cluster (EBI, BWRC, Skydeck, & more to come...)

2008

2009

2010

2011

Case Study: Berkeley Hy-LIE - Next Steps

Execution

- Skydeck accelerator becomes epicenter for the Berkeley Startup Cluster
- The Berkeley Startup Cluster grows events (see website)
- The Berkeley Startup Cluster forms an Advisory Committee:
 - Civic and business missions
 - Berkeley residents who are successful tech vets, entrepreneurs or early stage investors

Status

- Accelerators:
 - Skydeck (software)
- Foundry@CITRIS
- QB3 East Bay Innovation Center
- Startup Office Space:
 - NextSpace Berkeley
 - HUB Berkeley
 - Sandbox Suites Berkeley
 - Skydeck building full

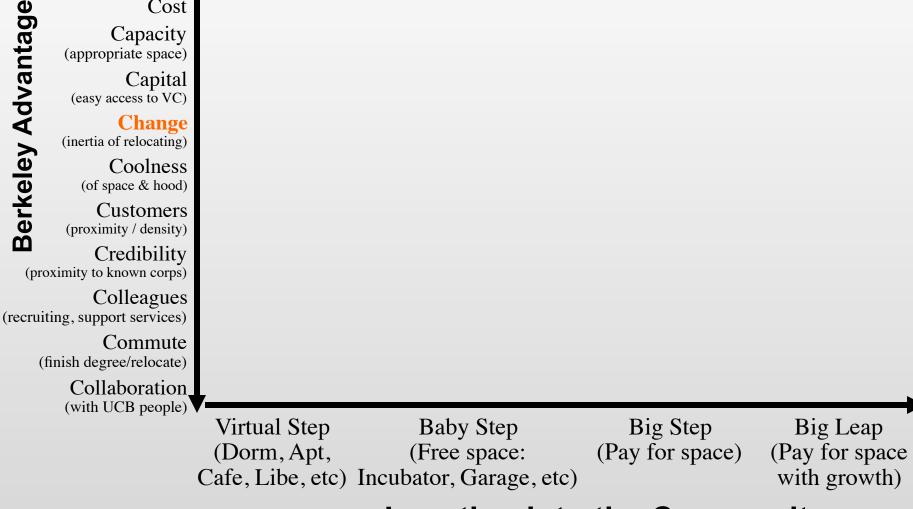
Plan

- More Class A office space
- More events
- Larger & denser people networks
- Better connections between Campus & Berkeley Startup Cluster to West Berkeley (~2 miles from campus)

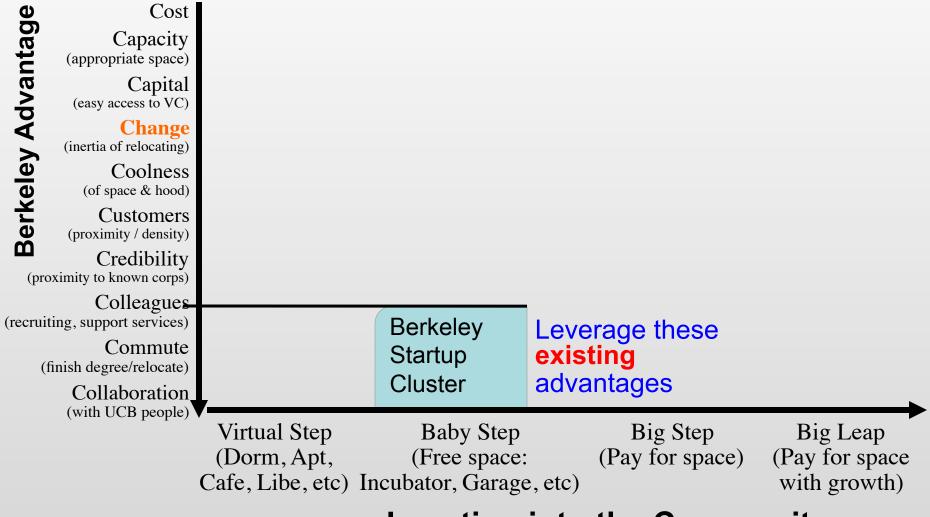
2012 2013 201

Cost

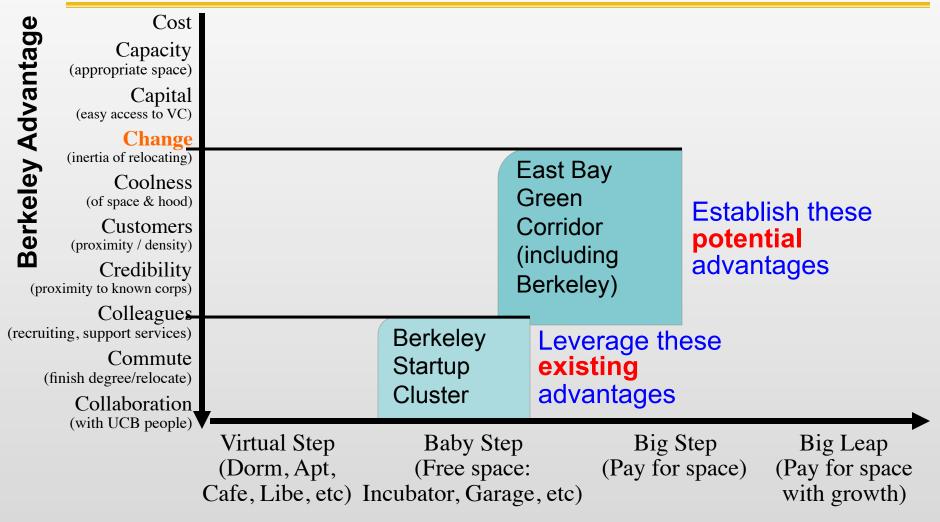
Case Study: Berkeley Competitive Strategy



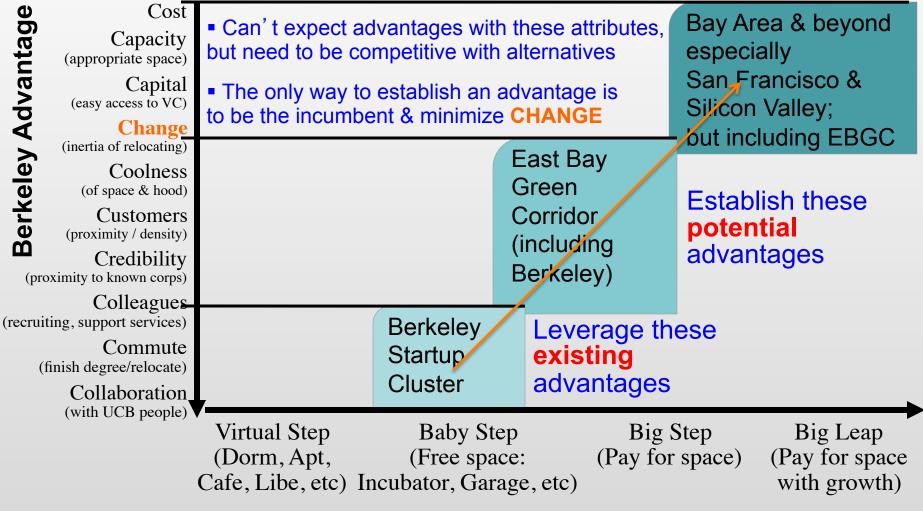
Case Study: Berkeley Competitive Strategy



Case Study: Berkeley Competitive Strategy



Case Study: Berkeley Competitive Strategy



Agenda: Q & A

- 1. Brief Intro
- 2. How UCB/LBNL Innovations Get Commercialized
- 3. How Can the Commercialization Occur Locally
- 4. Case Study: Berkeley CA
- 5. Q&A

How LBNL & UCB Innovations Get Commercialized, Locally



Mike Cohen
Director, Innovation Ecosystem Development
UC Berkeley Office of Technology Licensing
mike.c@berkeley.edu
510-643-7201